Impact of the Diazonium Grafting Control on the Interfacial Reactivity: Monolayer versus Multilayer

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Résumé en anglais	A very simple strategy to prepare, in two steps, a versatile and sustainable monolayer platform for on-surface chemistry is presented. The first step consists of the electroreduction of well-known 4-nitrobenzenediazonium in the presence of a radical scavenger, leading to a covalent monolayer surface modification. Then, a dense reactive phenylamine monolayer is obtained through the full electroreduction of the nitrophenyl moieties. The platform thus obtained is available for post-functionalization with carboxyl derivatives through a usual peptide coupling. Attachment of a TEMPO unit, offering both redox and electrocatalytic properties, validates this approach and leads to high surface coverage and fast electron transfer. A comparison of the electrochemical properties of the modified surface with a classical multilayered post-functionalized one highlights important differences in terms of interfacial reactivity. The results presented here justify the interest in preparing a reactive monolayer platform for molecule grafting and paves the way for simple and controlled surface chemistry without the need of synthesis.
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[5] http://okina.univ-angers.fr/publications/ua15406
[6] http://dx.doi.org/10.1002/celc.201600710
[7] http://onlinelibrary.wiley.com/doi/10.1002/celc.201600710/abstract;jsessionid=5313E784176E95DD7E7B0851096D787C.f04t02